

U.S. Serial No.: 09/980,744

REMARKS

This reply is responsive to the Office Action mailed on December 29, 2005. Claims 1-30 are pending in the application. Reconsideration in light of the following remarks is requested.

I. Rejection under 35 U.S.C. § 102

Claims 1-30 stand rejected under 35 U.S.C. § 102 as being anticipated by Thrift et al. ("JTV – Java-enabled Television", published February 1998) (Thrift). Applicants respectfully disagree.

Thrift discloses a general overview of the capabilities provided by the JTV API. The JTV API defines an extension of Java and the Java Media Framework for TV-centric devices and services. (Thrift, Abstract) The JTV API is included in a software configuration as shown in FIG. 1. Above the set-top or TV hardware, there is a TV-oriented RTOS (Real Time Operating System) for which various device drivers and a Java Virtual Machine have been implemented. (See Thrift, Section 2, first full paragraph, lines 1-2)

The Examiner's attention is directed to the fact that Thrift fails to disclose: "said fourth layer also including a kernel abstraction function which, together with said third layer, enables said core system software to operate in different operating environments," as recited in independent claims 1 and 16. Specifically independent claims 1 and 16 recite:

1. An apparatus for providing a software architecture for implementing a television subscriber terminal, comprising:

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a computer readable medium having computer program code means; and means for executing said computer program code means to implement a layered software architecture including:

- a first layer supporting hardware of the terminal;
- a second layer comprising at least one device driver;
- a third layer comprising an interface for the at least one device driver;
- a fourth layer comprising core system software for providing television functions;
- said fourth layer also including a kernel abstraction function which, together with said third layer, enables said core system software to operate in different operating environments;

- a fifth layer for middleware porting;
- an operating system kernel at said fourth and fifth layers; and
- a sixth layer providing middleware to interface with at least one application program. (emphasis added)

16. A method for providing a software architecture for implementing a television subscriber terminal, comprising the steps of:
providing a computer readable medium having computer program code means;
and

executing said computer program code means to implement a layered software architecture including:

- a first layer supporting hardware of the terminal;
- a second layer comprising at least one device driver;
- a third layer comprising an interface for the at least one device driver;
- a fourth layer comprising core system software for providing television functions;
- said fourth layer also including a kernel abstraction function which, together with said third layer, enables said core system software to operate in different operating environments;

- a fifth layer for middleware porting;
- an operating system kernel at said fourth and fifth layers; and
- a sixth layer providing middleware to interface with at least one application program. (emphasis added)

The present invention discloses a method and apparatus for providing a software architecture that enables core software of a set-top device to operate in any of a plurality of different operating environments. In a particular embodiment, an apparatus for providing a software architecture for implementing a television subscriber terminal includes a computer readable medium having computer program code means, and means for executing the computer program code means to implement a layered software

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architecture. The architecture includes: a first, hardware layer, a second, device driver layer, a third, device driver interface layer, a fourth layer with the core system software for providing television functions, and a kernel abstraction function, a fifth layer for middleware porting, and a sixth layer providing middleware to interface with at least one application program (at a seventh layer). The kernel abstraction layer and the device driver interface layer enable the core system software to operate in different operating environments. Moreover, an operating system (OS) kernel is provided at the fourth and fifth layers. The architecture further includes a software interface between the core system software and the fifth layer that enables the core system software to operate in the different operating environments. (See Application, Summary of the Invention)

In one embodiment, the television functions of the core system software include one or more of: message reception and distribution, system information processing, terminal configuration, terminal control message processing, service acquisition, conditional access control, download capability, return path communication, and diagnostic data management. Moreover, in one embodiment, the television functions may include conditional access services, including one or more of: object authentication, object authorization, resource authorization, baseline privacy key exchange services, and cryptographic functions. (See Application, Summary of the Invention)

In contrast, Thrift only discloses three actual layers (not including the application layer). The present invention discloses six layers (not including the application layer). In addition, Thrift is devoid of the notion of operating in different operating environments. Thrift clearly discloses only a TV-oriented RTOS (Real-Time Operating System). The concept of "including a kernel abstraction function which, together with said third layer,

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enables said core system software to operate in different operating environments" is clearly not taught, suggested, disclosed, or contemplated by Thrift. Therefore, claims 1 and 16 are patentable over Thrift. As such, claims 2-15 and 17-30 are patentable at least by virtue of depending from their respective base claims. Applicants respectfully request withdrawal of the rejection.

Conclusion

Having fully responded to the Office action, the application is believed to be in condition for allowance. Should any issues arise that prevent early allowance of the above application, the examiner is invited contact the undersigned to resolve such issues.

To the extent an extension of time is needed for consideration of this response, Applicants hereby request such extension and, the Commissioner is hereby authorized to charge deposit account number 502117 for any fees associated therewith.

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